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(54) PRODUCTION OF HARD COMPOSITE MATERIAL CONTAINING CUBIC BORON NITRIDE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a high-density composite material having excellent toughness, chipping resistance, strength and workability by subjecting a mixture composed of powders of specific compsns. to pressure sintering under and at a specific pressure and temp.

SOLUTION: The compsn. of the mixture is composed, by volumetric %, of 30 to 65% cubic boron nitride powder, 20 to 50% aluminum oxide powder, 0.1 to 10% metallic aluminum powder, 0.1 to 8% \geq 1 kinds of compnd. consisting of any of Li, Na and K and oxygen and silicon and 10 to 30% powder of \geq 1 kinds of any of the carbide, nitride and boride of Si and periodic table group 4A, 5A, 6A elements. The mixture is subjected to pressure sintering under 100MPa pressure and a 1000 to 1500°C. As a result, the need for a coating stage requiring costly devices is eliminated and highly dense sintered compacts are produced relatively easily.

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